R E P O R T R E S U M E S

ED 010 845 08

THE IDENTIFICATION AND COMPARISON OF THE COMMON PROFESSIONAL TRAINING NEEDS AND REQUIREMENTS FOR TEACHERS OF VOCATIONAL EDUCATION. (PHASE 1 - THE INSTRUMENT).

BY- COURTNEY, E. WAYNE
STOUT STATE UNIV., MENOMONIE, WIS.

REPORT NUMBER BR-6-8319 PUB DATE MAR 67
GRANT OEG-3-6-06813-1823
EDRS PRICE MF-$0.09 HC-$1.36 34P.

DESCRIPTORS- *MEASUREMENT INSTRUMENTS, TEACHER PROGRAMS, *VOCATIONAL EDUCATION, *DATA COLLECTION, EDUCATIONAL OBJECTIVES, *COURSE OBJECTIVES, ITEM ANALYSIS, *TEACHER QUALIFICATIONS, MENOMONIE

AN INSTRUMENT WAS DEVELOPED THAT COULD BE USED FOR ESTABLISHING THE CORE OF PROFESSIONAL KNOWLEDGES AND ABILITIES REQUIRED IN TRAINING PROGRAMS FOR VOCATIONAL TEACHERS IN FIVE AREAS. THE DISCIPLINES REPRESENTED IN THE PROCESS OF IDENTIFICATION INCLUDED (1) TRADE AND INDUSTRIAL EDUCATION, (2) BUSINESS EDUCATION, (3) HOME ECONOMICS EDUCATION, (4) AGRICULTURE EDUCATION, AND (5) DISTRIBUTIVE EDUCATION. PROFESSIONAL COURSES REQUIRED FOR THE PREPARATION OF VOCATIONAL TEACHERS WERE REVIEWED, AND A COMPOSITE LISTING WAS MADE OF KNOWLEDGES AND SKILLS WHICH WERE UNIQUE TO THE DISCIPLINES BEING STUDIED. WITH THE HELP OF CONSULTANTS, KNOWLEDGES AND SKILLS TO BE INCLUDED IN THE INSTRUMENT WERE SELECTED. THE 200 COMPONENTS OF THE FINAL LISTING WERE THEN INCORPORATED IN THE INSTRUMENT USING LIKERT SCALES TO RATE THE NEED FOR EACH KNOWLEDGE AND SKILL IN THE WORKER'S JOB. THE COMPLETED INSTRUMENT WAS DEEMED READY FOR THE FIELD TESTING PHASE. (GD)

ED010845

NAA

FINAL REPORT
Project N. 6-8319
Grant No. OEG-3-6-068319-1823

THE IDENTIFICATION AND COMPARISON OF THE COMMON PROFESSIONAL TRAINING NEEDS AND REQUIREMENTS FOR TEACHERS OF VOCATIONAL EDUCATION
(Phase I - The Instrument)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

March, 1967

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

The Identification and Comparison of the Common Professional Training Needs and Requirements for Teachers of Vocational Education (Phase I - The Instrument)

Project No. 5-8319
Grant No. OEG-3-6-06813-1823

E. Wayne Courtney

March, 1967

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Stout State University

Menomonie, Wisconsin

ACKNOWLEDGEMENTS

The completion of this project is due primarily to the efforts of the assigned consultants and to others who cooperated in the compilation of resources used for the study. Much of the routine work was done by Mr. Wayne Nelson, Graduate Research Assistant at Stout State University, and Mr. Leno Christensen of Oregon State University. The clerical activities were performed by Miss Judy Kuehl, Mrs. Judy Davis, and Mrs. Linda Jacobs. These persons are duly acknowledged for their efforts and their fine cooperation and interest in the project.

CONTENTS

INTRODUCTION

I. THE PROBLEM

Statement of the Problem

The central problem of this study was to develop an instrument which could be used for the determination of the core of professional knowledges and skills required in training programs for vocational teachers. The basic thesis advanced in the study was that there should be a common set of experiences among training programs in vocational education. According to this premise, the problems related to the training of teachers of vocational education have common threads extending throughout the broad spectrum of disciplines included within the scope of training.

The thesis of commonality among vocational programs has been advanced of late by several researchers including Woerdehoff and others (29, pp. 62-64), who developed common elements which emerged from an analysis of trends and concepts of vocational education. The common concerns of the composite of vocational programs has also been reflected in the recent 1965 Sixty-fourth Yearbook of the National Society for the Study of Education, Part I, entitled Vocational Education, in which nearly the entire content was devoted to elements of interest to all vocational areas. In similar fashion, the Vocational Education Act of 1963 denotes commonality among programs and expands the definition of vocational training to " . . . include vocational guidance and counseling in connection with such training, instruction related to the occupation for which the student is being trained or necessary for him to benefit from such training. . ." (Section8).

It is apparent that local training programs, as well as state and national efforts, should be geared toward the current needs of workers. One of the principal methods of approaching this problem is through occupational analyses. Vocational education has pioneered in the use of this research method (16, pp. 183, 263-4). One of the best techniques of evaluation has been the use of follow-up studies to determine the extent to which workers were trained for various occupations. The results of these studies have had obvious implications for program planning and curriculum development (16, p. 265).

Presently, as well as in the past, the training of agriculture and home economics teachers, and to a great extent, teachers of distributive education, has been accomplished through programs which combine a broad base of occupational content with appropriate professional education. For trade and industrial education, persons with adequate occupational experiences have been employed with relatively little pre-employment professional training (27, p. 268). Likewise, program variations may occur because of differences in geography and climate (27, p. 174).

If appropriate training programs are to meet these varying needs, they must be designed to fit the operating programs. However, the standardization of curriculums across the nation might well be practicable in many fields (27, p. 175). Such a standardization in vocational teacher training might well be dependent upon the identification of the basic elements or common core of experiences among vocational training programs.

The central problem of this proposal was focused on the identification of common elements of professional training inherent for the vocational programs to be studied. Specifically, the problem was centered on the classification of training needs for the various disciplines studied, which are common to and cut across a variety of teacher preparation programs. The first phase centered upon the development of an appropriate instrument to be utilized for the subsequent study of common elements.

II. THE RELATED LITERATURE AND THE RATIONALE FOR THE STUDY

The Related Literature

In recent years, many approaches have been made to obtain information which may serve as a basis for occupational preparation. This section presents a sequence of events based on related studies and proceeds through to the evolvement of the theoretical construct for the present study.

Recently, there have been increased efforts to identify dimensions relating job classification to job training. The present study has emerged from these efforts. There is considerable interest in both the methodology of related work and the findings of these studies. The present study was particularly interested in exploring the identification of common behavioral factors relevant to job training. From the various approaches, three have been selected for special consideration.

1. The classification of occupations. Perhaps the most pertinent developments which have been given recent attention in the classification of occupations has been instigated by the Bureau of Employment Security of the U.S. Department of Labor. These developments, among others, have attempted to systematically classify the D.O.T. (Dictionary of Occupational Titles). The concept of these classifications has been described by Fine (7) and Studdiford (23), with Studdiford reporting on occupations classified according to work performed, industry, working conditions, training time, aptitudes, interests, and a variety of other factors. In all, a total of forty-four variables were identified to describe these components (24), with a subsequent factor analysis treatment by McCormick, Finn, and Schieps reducing the variables to seven factors (14). These seven reported patterns of job requirements were based on ratings assigned to each variable for a sample of 4,000 jobs (14). The seven factors included (1) mental and educational development versus adaptability to routine, (2) adaptability to precision operations, (3) body agility, (4) artistic ability and esthetic appreciation, (5) manual art ability, (6) personal contact ability versus adaptability to routine, and (7) heavy manual work versus clerical ability. These reportings have relevance to the present study in that the development of classification of jobs and the terminal emergence of job requirements have been sequentialized. According to McCormick, Finn, and Schieps, it was found that there was present " . . . a strong concentration of jobs in a very limited number of the various possible patterns" (14). These systemtized analyses suggest that requirements for vocational teacher training may be similarly studied with appropriate curriculum and training program changes resulting.

2. Related methodological studies. It appears that methodological procedure in the problem under consideration should be an important segment of related literature information. The previously reported study by McCormick, Finn, and Schieps (14) represents such a study. The conceptual basis of the present study emerged from the studies of job interrelationship by McCormick (13), Thomas (25), and Chalupsky (1) in which factors in office occupations and clerical jobs were studied. These workers reported that "cluster" identifications of jobs were made with Chalupsky using two check lists to examine a sample of job schedules and thence, analyzing the data from the two check lists separately. This study showed that four factors were common to both check lists, denoting the possible overlap of factors.

A similar approach has been made by Courtney in studying eighty factors within three occupations in the field of industrial graphics (5). Of special importance to the present study is the collection of basic data from established workers who indicated components pertinent to their occupations by checking appropriate check lists. A Wisconsin State Board of Regents of State Colleges study directed by Courtney utilized the same technique in analyzing seventy-two items related to professional education course preparation and requirements. The methodology, using analysis of variance, was judged to be very appropriate for the study (6). Here, the association of need and training preparation was related using a Likert-type check list and a sampling from a population of experienced vocational teachers in the field. Thus, the collection of basic data from experienced workers has been verified for the present contemplated study.

3. Studies in related agricultural occupations. Recent studies including work by Coster and Courtney (2) and Courtney (4), have applied and verified the methodology described above. These studies have analyzed data obtained for needed competencies and activities in related agricultural occupations. The studies reported by Phipps and Fuller (21) implemented the collection of data through interviewing the workers.

Using data collected by Courtney (4), Coster and Courtney analyzed the responses from a sample of 120 workers in related agricultural occupations for 148 competencies related to agricultural jobs (2). Here intercorrelations among workers averaged over the competencies studied, and intercorrelations averaged over the workers resulted in the identification of five competency groups: plant science, animal science, soil science, agricultural business management, and agricultural mechanics. The factor analysis confirmed to a reasonable degree the existence of three occupational groups in that loadings of 93 of the 120 workers showed agreement with the hypothesized factors. For the analysis of competencies, however, the farm management competencies loaded on the animal factor and on the agronomy factor. Coster and Penrod reconfirmed these findings in their work (3).

It appears that identified factors, based on responses to activities or competencies, do not follow occupational classification lines, This would suggest the existence of common competency or activity factors. Using this as a departure point, it is assumed that preparation or training for gainful employment may be studied with the identification of competency needs being forthcoming as a result.

III. THE THEORETICAL CONSTRUCT

From the studies cited above, the following resumes may be formulated for purposes of setting the stage for development of the theoretical framework for the study.

1. Occupations may be classified, and studied, from a variety of perspectives. The idea of component analyses has presented itself in recent years to the extent that such analyses are considered to be acceptable means of classifications. Patterns of job requirements have been closely associated with the concept of factor identification.

2. The classification of jobs and job requirements have called upon approaches to methodology which have, likewise, been varied and many. The advent of the studies of job interrelationships and factor analyses have dealt primarily with check lists as the screening tool. Approaches which have utilized these techniques have analyzed components of occupations as well as components of training program preparations and needs.

3. Agriculturally related occupational studies have utilized the principles of data collection by check lists, as well as through the methodology of factor analysis. The use of the interview in the data collection process has added to the validity of findings. The incorporation of the existence of commonalities among related occupations through the analysis of activity factors binds the linkages between methodology and classification. Hence, the approach to the identification of commonalities among programs may be logically studied with the common elements of training being identified.

Thus, the stage is set for the basis for studying the problem at hand. The theoretical framework for the study is deployed in the following statements:

1. Factor identification may be accomplished using as a base an occupational groups classification system. Such identifications should reveal areas of differentiation among workers.

2. The use of job requirement components in the collection process provides for a large spectrum analysis description of the populations being studied. The inventorying of competency or need activities provide the data necessary for interrelationship and factor analysis.

3. The application of factor analytical and analysis of variance techniques provide a basis for descriptive grouping of the inventoried factors. Through such analyses, groupings of subject matter common to the populations under investigation may be appropriately compared for both competency and need. From such analyses, patterns of training may be established for workers in vocational teaching so that the basic elements and needed experiences among training programs may be identified.

IV. THE OBJECTIVES

The theoretical construct of the study may be translated into an appropriate set of objectives which reveal the nature of the problem's description. In analyzing the various factors related to Phase I of the research, the following objectives are given:

1. To develop a composite of professional education courses required for the preparation of teachers of vocational teachers.

2. To produce a summary of components consisting of knowledges and skills offered to teacher trainees.

V. THE PROCEDURES

The present phase was primarily conceived with the construction of an instrument which could be used for the collection of data for the study. In the development of the instrument, the following steps were completed:

1. A composite of professional courses required for the preparation of vocational teachers was made, using seventeen arbitrarily selected institutions for the compilation.* Institutions used for this step included those which provided training for professional workers in

   A. Trade and Industrial Education
   B. Business Education
   C. Home Economics Education
   D. Agriculture Education
   E. Distributive Education

2. A composite listing was made of components (knowledges and skills) representing professional education courses which were unique to the five disciplines indicated above.

3. A selection of representative knowledges and skills was made with the selected components comprising the content from which the finalized instrument was derived.

4. The completed instrument was designed to have responses recorded on a Likert-type arrangement for each of the components. The instrument was formed to run a forced-choice distribution of the selected components in order that the same frame of reference be recorded for all teachers who would respond to the scale. The intended distribution spreads itself according to the scheme suggested by McNemar (15) in which, with a mean of 3.0, components are arranged by the respondents from a low of 1.0 to a high of 5.0 as follows:

---

*See the Appendix for a listing of institutions, courses inspected, and requirements for each.

Likert-number Designation	Percentage Arrangement	Number of Items
1.0	12%	24
2.0	22%	44
3.0 (mean)	32%	64
4.0	22%	44
5.0	12%	24
	Σ = 100%	Σ = 200

Each of the two hundred items comprising the instrument were placed on cards which could be sorted into the five forced-choice categories, thus making the rearrangement of cards easier for the respondents. A marked table indicating categories and numbers of items to be placed in each category was developed to facilitate the sorting effort.

It is intended that the completed instrument will be used in conjunction with the personal interview as data are collected for the study.

VI. THE RESULTS

The identification of the common elements of professional training will, in the future, serve as a basis for developing programs for the preparation of vocational teachers. The facilitation of the availability of transference among occupations is a challenge for which answers must be sought.

For the present study, which involved the development of the instrument to be used in the collection of data, the following results were concluded:

1. In all, a total of forty-six subject matter areas were examined for content with a terminal listing of several hundred knowledges and skills being identified.*

2. From the composite list of knowledges and skills, an arbitrary selection of items resulted in 200 components being identified for use in subsequent research phases. Consultants were utilized in the selection of components to be used for the study.[1]

---

*See the Appendix for a list of the areas studied.

[1]Consultants utilized for the study included John Stevenson (Vocational Guidance), Robert Rudiger (Trade and Industrial Education), Vernon Swensen (Distributive Education and Business Education), Mildred Turney (Home Economics Education), John Coster (Vocational Agriculture and Research Design), Clifford Gauthier (Statistics-Computer), Kenneth Little (Resource Materials), and Morris Norfleet (Measurement). Wayne Nelson acted as the Research Assistant.

3. The selected components were randomly arranged for insertion into the instrument, with a Likert-type system being assigned to each of the included knowledges and abilities. The developed instrument is shown as follows in manuscript form. The actual items were placed onto cards for use in the data collection effort.

VOCATIONAL EDUCATION TRAINING NEEDS STUDY
INSTRUMENT

(to be used in combination with the interview
as a technique for data collection).

STOUT STATE UNIVERSITY
SCHOOL OF EDUCATION
MENOMONIE, WISCONSIN

Directions: Following is a list of knowledges and skills items related to training needs and requirements for teachers of vocational education. For each statement (item) decide which one of the following ratings (1 2 3 4 5) best evaluates your feeling about the necessity for the knowledge or ability item with regard to your job. The following key should be used for the assignment of the ratings:

1. My job requires no knowledge or skill of this activity.

2. My job requires some knowledge or skill of this activity.

3. My job requires a reasonable amount of knowledge or skill of this activity.

4. My job requires a fairly complete knowledge or skill of this activity.

5. My job requires a complete knowledge or skill of this activity.

For the assignment of ratings (1 2 3 4 5) to each knowledge or skill item, please distribute the ratings as follows:

Assign 24 items a rating of 1.
Assign 44 items a rating of 2.
Assign 64 items a rating of 3.
Assign 44 items a rating of 4.
Assign 24 items a rating of 5.

If there are questions concerning the assignment of the cards, please ask the interviewer for further explanation of the rating system.

Knowledge and Understanding of:

1. The use of standardized test results in placement.
2. Evaluating student achievement.
3. Evaluating student growth and development.
4. The use of standardized tests for classroom use.
5. Evaluation as it relates to the total teaching process.
6. Selection of tests.
7. The value and use of percentiles.
8. The referral resources available to a counselor.
9. The major industrial and agricultural production processes.
10. The place of teacher made tests.
11. The types of achievement measuring devices.
12. The procedure for checking test validity.
13. The procedure for checking test reliability.
14. The use of the test as a teaching device.
15. The use of the central tendency measures in testing.
16. The value of oral tests.
17. The basic types of objective questions used by teachers.
18. Ways of measuring manipulative skills.
19. The characteristics of an efficient marking system.
20. Principles of test administration.
21. Principles of test construction.
22. The use of pupil report cards.
23. The media to use for public relations.
24. The value of public relations to the school.
25. The responsibility of the instructor for public relations.
26. The groups in the community to be served by vocational education.
27. How to develop parental understanding of the vocational program.
28. How to effectively utilize available public relation techniques.
29. The changes in educational philosophy during recent years.
30. The basic principles of education.
31. The technical changes influencing curriculum.
32. The effect of industrial development on selection of basic instructional units.
33. The basic principles of teaching.
34. The relationship of laws of learning and current philosophy.
35. Teacher ethics and the reason for them.
36. The role of the school in training students for specialized vocations.
37. The development of skills as objectives of education.
38. The acquisition of knowledge as an objective of education.
39. Professional ethics and its influence upon teachers.
40. The educational implications of changes taking place in our society.
41. The use of vocational guidance in the school setting.
42. The various techniques and theories of counseling.
43. The function of the school in job placement.
44. The techniques of human relations.
45. The organization of guidance in local schools.
46. The changing technical needs of society.
47. The offerings of vocational and technical schools.
48. The philosophy and principles of vocational and adult education.
49. The purposes of vocational education.
50. The differences between vocational education and technical education.

51. The differences between vocational education and general education.
52. The occupational demands of the future.
53. The trends in employment of the service trades.
54. The steps in teaching a lesson.
55. How environmental factors influence the individual within his society.
56. The types of relationships between the teacher, pupils, parents, and the staff.
57. The significance of the various federal acts upon vocational education.
58. The essential features of the Smith-Hughes and George-Barden Acts.
59. The educational implication of our changing society.
60. The effects of automation on society.
61. The industrial nature of society.
62. Trends in vocational and adult education.
63. The economic changes influencing curriculum.
64. The present status of vocational education.
65. The sociological changes influencing curriculum.
66. The role of education in our society.
67. The plan for distributing state and federal aid.
68. The implications of the Vocational Education Act of 1963 for vocational education.
69. The development of vocational education in America.
70. The principles of industrial economics.
71. The duties of local boards of vocational and adult education.
72. The special requirements of vocational buildings.
73. The structure and use of advisory committees.
74. Relating the vocational program to other curricular offerings.
75. The purpose of teacher tenure laws.
76. The finance of adult vocational education.
77. The state plan of vocational education.
78. Organization and promotion of adult classes.
79. The school laws and policies.
80. The school budgeting and record keeping.
81. The need for compulsory school attendance laws.
82. Current educational trends.
83. The occupational objectives of students.
84. The need and opportunity for employment in vocational occupations.
85. The information necessary for occupational planning.
86. The major classifications of workers.
87. Occupational training needs.
88. The history of industrial and agricultural development.
89. The requirements for entrance into occupations.
90. The use of the Dictionary of Occupational Titles.
91. The organization of vocational and adult education.
92. The use of job classification.
93. The types of vocational occupations.
94. Criteria for evaluating occupational information.
95. The laws and regulations concerning employment.
96. The basic theories of occupational choice.
97. The steps in problem-solving.
98. The trends in curriculum development in the secondary school.
99. The relationship of trade and job analysis to course development.
100. How to educate the handicapped.

101. The place of the classroom teacher in curriculum revision.
102. The proper use of the discussion method.
103. The major parts of a course of study.
104. The relationship of daily lesson plan to course of study.
105. The curriculum patterns in general education.
106. The principles of learning.
107. The advantages and disadvantages of programmed learning.
108. The purposes of curriculum planning.
109. The tools and equipment necessary for instruction.
110. The information needed to manage a class.
111. The place of competitive events in teaching vocational education.
112. The construction of teaching outlines.
113. The qualifications of a good discussion leader.
114. The use of organization charts.
115. The appropriate grade levels for presenting occupational and educational information.
116. The formal organization of the course of study.
117. The characteristics of related instruction.
118. The use of assignment sheets to aid instruction.
119. The purposes and uses of sociograms.
120. The predominant group teaching procedure.
121. The construction and use of progress charts.
122. The curriculum as affected by national and international trends.
123. The instructional aids which improve learning.
124. The place of the textbook in modern education.
125. The steps involved in a demonstration.
126. The purposes of shop projects or jobs.
127. How to provide for individual differences.
128. The common problems of discipline.
129. The criteria for a good display.
130. Student experiences which provide for maximum learning.
131. The principles relating to purchase of equipment and supplies.
132. The relationship of federal, state, and local programs.
133. The criteria used in selecting a textbook.
134. The materials necessary in the teacher's library.
135. The rules and regulations concerning teacher liability.
136. The desirable characteristics of the teacher.
137. Types of youth groups present in schools.
138. Promotion and maintenance of adult vocational programs.
139. The non-teaching school responsibilities of teachers.
140. The role of different school officials in effective public relations.
141. The major steps in job analysis.
142. The relationship between management, labor, and education.
143. Teacher certification requirements and the need for them.
144. The use of educational media in instruction.
145. The importance of the emotional climate in the class.
146. The criteria for selecting and evaluating a film.
147. Techniques in visiting places of employment.
148. The various problems of industry.
149. The factors affecting curriculum development.
150. The place of school in character development.
151. The theories involving learning and forgetting.

152. Desired student competencies.
153. Theories of motivation.
154. The trends in technical education.
155. The importance of practice for the student.
156. The nature and function of anecdotal records.
157. The influences of adults on children's behavior.
158. Proper and adequate instructional materials for the classroom.
159. The effects of followup studies on high school curriculum.
160. The most efficient laboratory organization methods.
161. The principles involved in the psychology of learning.
162. The traditional methods of dealing with problem behavior.
163. The types of students who enroll in vocational programs.
164. The role of attitude in the learning process.
165. The transfer of learning and its implications.

The Ability to:

166. Apply statistical procedures when interpreting evaluative data.
167. Select and evaluate source material.
168. Check test difficulty.
169. Use cumulative records to check on students.
170. Make annual reports to the public.
171. Assess occupational interests.
172. Conduct followup studies.
173. Make the most effective use of observation.
174. Select audio-visual aids.
175. Plan learning experiences.
176. Organize instructional materials for effective teaching.
177. Prepare shop or laboratory lessons.
178. Make a daily lesson plan.
179. Produce and use resource units.
180. Develop appropriate teaching objectives.
181. Use job sheets to aid instruction.
182. Develop manipulative ability in the learner.
183. Conduct a field trip.
184. Plan and organize an adult class.
185. Develop a course of study.
186. Motivate the learner.
187. State appropriate lesson objectives.
188. Prepare news stories for newspapers and school papers.
189. Produce tape recordings.
190. Develop intellectual abilities of the students.
191. Establish the scope and purpose of surveys.
192. Identify skills and concepts to be taught.
193. Lead a conference.
194. Operate office type equipment.
195. Understand adolescents.
196. Select major units for a course of study.
197. Schedule class and occupational work experience of students.
198. Use textbooks in shopwork and laboratory work.
199. Challenge the gifted student.
200. Give a demonstration.

VII. DISCUSSION

This section of the report is necessarily brief in that the instrument development was the principal objective of the study. The instrument has not been tested in the field and consequently, should be considered as tentative until it has been so evaluated. The projected field testing is anticipated in the next phase of the research.

VIII. IMPLICATIONS

Local training programs, as well as state and national efforts, should be geared toward the current needs of workers. Recently, there have been increased efforts to identify dimensions which relate job classification to job training. The present study was particularly interested in exploring the identification of common professional education factors relevant to the training of teachers of vocational subjects.

The theoretical framework for this study shows that factor identification may be accomplished using as a base an occupational groups classification system. The inventorying of competency or need activities provide data necessary for determining interrelationships. From such a framework, patterns of training may be established for workers in vocational teaching so that the basic common professional education experiences among training programs may be identified.

The present study has developed a summary of knowledge and skill components which may now be utilized for identifying common and differentiated elements among vocational teacher training programs. The projected data collection work as well as the appropriate research design has been identified and documented for the future phases. Appropriately and conveniently, the stage is set to progress upon the planned enterprise.

IX. SUMMARY

The central problem of this study was to develop an instrument which could be used for establishing the core of professional knowledges and abilities required in training programs for vocational teachers. The basic thesis advanced in the study was that there should be a common set of experiences among training programs in vocational education. Hence, according to this premise, the problems related to the training of teachers of vocational education have common threads extending throughout the broad spectrum of disciplines included within the scope of training.

The principal objective of the present study was to isolate components (knowledges and abilities) offered to teacher trainees and which could be developed into a suitable data collection device. In meeting this objective, course syllabi representing training programs

for vocational education teachers were examined with knowledges and skills being identified and recorded. Disciplines represented in the process of identification included (1) Trade and Industrial Education, (2) Business Education, (3) Home Economics Education, (4) Agriculture Education, and (5) Distributive Education.

Utilizing a consultant group of specialists, knowledges and skills to be included in the instrument were selected, with a resulting two hundred (200) components comprising the final listing. The selected components were then incorporated onto a marking system and the instrument was deemed to be ready for the field testing phase.

REFERENCES

1. Chalupsky, A. B., Comparative factor analyses of clerical jobs, J. Appl. Psychol., 1962, 46, 62-66.

2. Coster, J. K. and E. W. Courtney, Factor analyses of agricultural competencies and workers in three selected occupations. Unpublished study, Department of Education, Purdue University, Lafeyette, Indiana. To be published in the Purdue University Studies in Education series in 1966.

3. Coster, J. K., and W. J. Penrod, Factor analyses of compentency items and workers in agricultural occupations in the Metropolitan School District of Wabash County. Unpublished study, Department of Education, Purdue University, Lafayette, Indiana. To be published in the Purdue University Series in Education Studies in 1966.

4. Courtney, E. W., A Comparison of Knowledge and Experience Levels Required in Three Agricultural Occupations. Unpublished doctor's dissertation, Purdue University, Lafayette, Indiana, 1962.

5. Courtney, E. W., Some Statistical Correlates in Industrial Graphics--A Study of Knowledge and Experience Interrelationships, Department of Psychology and Education, Stout State College, Menomonie, Wisconsin, 1963.

6. Courtney, E. W., Implications for the Training of Teachers--Professional Education Preparation and Requirements, The Graduate School, Stout State University, Menomonie, Wisconsin, 1965.

7. Fine, S. A., A pilot study to develop a functional classification structure of occupations by factor experimentation. Amer. Psychol. 1951, 6, 386.

8. Fine, S. A., A structure of worker functions. Personnel Guid. J., 1955, 34, 66-73.

9. Fine, S. A., and C. A. Heinz, The estimates of worker trait requirements for 4,000 jobs. Personnel and Guid. J., 1957, 36, 168-174.

10. Fleishman, E. A., and G. D. Ellison, A factor analysis of fine manipulative tests. J. Appl. Psychol., 1962, 46, 96-105.

11. Fleishman, E. A., M. M. Roberts, and M. P. Friedman, A factor analysis of aptitude and proficiency measures in radiotelegraphy. J. Appl. Psychol., 1958, 42, 129-135.

12. Gonyea, G. G., and C. E. Lunneborg, A factor analytic study of perceived occupational similarity. J. Appl. Psychol., 1963, 47, 166-172.

12a. Horst, Paul, Factor Analysis of Data Matrices, New York; Holt, Rinehart, and Winston, 1965, pp. 74-78, 185-91, 582-84.

13. McCormick, E. J., and others, A Study of Job Interrelationships, Purdue University Occupational Research Center, Lafayette, Indiana, 1954.

14. McCormick, E. J., R. H. Finn, and C. D. Scheips, Patterns of job requirements, J. Appl. Psychol., 1957, 41, 358-364.

15. McNemar, Q., Psychological Statistics, 3rd ed., New York, Wiley, 1962, p. 382.

16. National Society for the Study of Education, Sixty-fourth Yearbook: Part I Vocational Education, Melvin L. Barlow, editor. Chicago, University of Chicago Press, 1965.

17. Ostle, B., Statistics in Research. Ames, Iowa, Iowa State College Press, 1954, pp. 269 ff.

18. Osgood, C. E. et. al., The Measurement of Meaning. Urbana, Illinois, University of Illinois Press, 1958.

19. Palmer, G. J., Jr., and E. J. McCormick, A factor analysis of job activities, J. Appl. Psychology, 1961, 45, 289-94.

20. Phipps, L. J., and G. R. Fuller, Activities of technicians and of other workers who need some technical education. In L. J. Phipps and others, Technical Education In and For Rural Areas. Vocational and Technical Education Department, College of Education, University of Illinois, Urbana, Illinois, 1964, pp. 25-44.

21. Phipps, L. J. and G. R. Fuller, Knowledge areas in which identified technicians and other workers needing some technical education must be competent. In L. J. Phipps and others, Technical Education In and For Rural Areas. Vocational and Technical Education Department, College of Education, University of Illinois, Urbana, Illinois, 1964, pp. 45-59.

22. Publis Law 88-210, 88th Congress, (H.R. 4955), Vocational Education Act of 1963, Section 8 (1).

23. Studdiford, W. S., A functional system of occupational classification, Occupations, 1951, 30, 37-42.

24. Studdiford, W. S., New occupational classification structure, Employment Security Rev., 1953, 20, No. 9.

25. Thomas, L. L., A cluster analysis of office operations, J. Appl. Psychol. 1952, 36, 238-42.

26. Torgerson, W. S., Theory and Methods of Scaling, New York, Wiley, 1958.

27. United States Department of Health, Education, and Welfare, Education for the Changing World of Work, A report of the Panel of Consultants on Vocational Education, Washington, U. S. Government Printing Office, 1963.

28. Wherry, R. J., An orthogonal re-rotation of the Baehr and Ash studies of the SRA Employee Inventory, Personnel Psychol., 1954, 7, 365-80.

29. Woerdehoff, Frank J., Norbert J. Nelson, and John K. Coster, Vocational Education in Public Schools as Related to Social, Economic, and Technical Trends: I. The Analysis of Trends and Concepts. Studies in Education, No. 1., Lafeyette, Indiana, Purdue University, Division of Education, 1960.

APPENDIXES

APPENDIX A

College Catalog Inspection For Determining The Professional Education Course Requirements

		INSTITUTIONS																TOTAL
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
History of Education	T. I.				4											3	3		10
	B. E.	3			3		3			3	3				3		3		21
	H. Ec.	3	4	4	3		3	3	3	3	4				3	3	3		39
	Voc. Guid.																		
	Ag.	3	4	4	3		3	3			3				3	3	3		32
	D. E.	3			3														6
Totals		12	8	8	16		9	6	3	6	10				9	9	12		108
Principles of Sec. Ed.	T. I.				5											3	3		11
	B. E.				5		3				3						3		14
	H. Ec.			3	4		3			5	3		10	4			3		35
	Voc. Guid.																		
	Ag.				5		3		4	3	3	2	5	4		3	3		35
	D. E.				5											3			8
Totals				3	24		9		4	8	9	2	15	8		9	12		103
Principles of Voc. Ed.	T. I.											3				3			6
	B. E.	2										3							5
	H. Ec.	2			3		3									3			11
	Voc. Guid.																		
	Ag.	2					3	2	3	3		2				3			18
	D. E.	2										3				3			8
Totals		8			3		6	2	3	3		11				12			48
Adult Education	T. I.				3														3
	B. E.																		
	H. Ec.			3	3		4	3	3			3				3	1		23
	Voc. Guid.																		
	Ag.			4	3		4	3	3	3	3	3	4		3	3			36
	D. E.																		
Totals				7	9		8	6	6	3	3	6	4		3	9	1		65

INSTITUTIONS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Ind. & School Introduction To Specific Field of Ed.	T. I.				3	3										3	3	4	16
	B. E.	3			3					3	3				3		3		18
	H. Ec.	3		4		3	3		3		4				3	3	3		29
	Voc. Guid.																		
	Ag.	3		4		3	3	3			3	3			3	3	3	3	34
	D. E.	3			3	3													9
Totals		12		8	9	12	6	3	3	3	10	3			9	9	12	7	106
School & Society or School & Am. Life	T. I.					3													3
	B. E.	3		3						3		3			3				15
	H. Ec.	3								3	4	3	3		3	3			22
	Voc. Guid.																		
	Ag.	3						4	3		3	5	4		3	3		3	31
	D. E.																		
Totals		9				3		4	3	6	7	11	7		9	6		3	71
Methods of Teaching	T. I.				5														5
	B. E.	3		4	9		4			6	6	6			6	4	4		52
	H. Ec.	3		4	5		4	3	3	3	7		6	6	6	3	5		58
	Voc. Guid.																		
	Ag.	3		4	5		4	4	4	4		3	6	6	6	6	5		60
	D. E.	3		3								6				6			18
Totals		12		12	27		12	7	7	13	13	15	12	12	18	19	14		193
Student Teaching	T. I.				9	9									12		9	9	48
	B. E.	15			9		8				10	9			12		8		71
	H. Ec.	15	9	12	10	9	8	12	9	10	10	9	10	8	15	9	7		163
	Voc. Guid.																		
	Ag.	15	9	12	10	9	14	9	9	10	10	9	6	8	15	9	10	9	173
	D. E.	15			9	9						9				9			51
Totals		61	18	24	47	36	30	21	18	20	30	36	26	16	54	27	34	18	506

INSTITUTIONS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
English	T. I.					9						9			9	9	6	8	50
	B. E.	12			9	9	9				15	15					6		75
	H. Ec.	9	12	12	9	9	9	9	9	9	12	15	9	8	9	9	6		155
	Voc. Guid.																		
	Ag.		8	12	9	9	9	9	9	11	9	18	9	8	9	6	6	8	149
	D. E.	12			9	9						9				9			48
Totals		33	20	24	36	45	27	18	18	20	36	66	18	16	27	33	24	16	477
Writing	T. I.											6							6
	B. E.	7					4												11
	H. Ec.			3					3	4		6	3						19
	Voc. Guid.																		
	Ag.			3			4		3	4		6	3	4	3	4			34
	D. E.	7										3				3			13
Totals		14		6			8		6	8		21	6	4	3	7			83
Speech	T. I.				5	4						3			3	3	3	3	24
	B. E.					4											3		7
	H. Ec.	3	4	3		4		3	4	4	4		3	3	3		3		41
	Voc. Guid.																		
	Ag.		4	3		4	4	3	4	4	4		3	3	3	3	3	3	48
	D. E.					4										3			7
Totals		3	8	6	5	20	4	6	8	8	8	3	6	6	9	9	12	6	127
Art	T. I.																3		3
	B. E.																3		3
	H. Ec.			6								3	3	3	6		3		24
	Voc. Guid.																		
	Ag.																		
	D. E.											6				4			10
Totals				6								9	3	3	6	4	9		40

INSTITUTIONS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Ed. Psy.	T. I.				5	3						6					3	5	20
	B. E.	3		3			3					6			3				21
	H. Ec.	3	3	3	4	3	3	3	3	3	3	3	3	6	3	3	3		52
	Voc. Guid.																		
	Ag.	3	3	3	4	3	3	3	3	3	3	3	3	4	3	3	3	3	53
	D. E.	3			4	3						3							13
Totals		12	6	9	17	12	9	6	6	6	6	21	6	10	9	6	12	6	159
Psy. other than Ed.	T. I.				5							6			6		3		20
	B. E.	4					10				3	3	6	4			3		33
	H. Ec.	6	3	3		4	5		4	4	6	3			6	5	3		52
	Voc. Guid.																		
	Ag.	3	3	3		4	5	3	4	4	6	3	6	4	6		6		60
	D. E.	4			5	4						6				6			22
Totals		17	6	6	10	12	20	3	8	8	15	21	12	8	18	8	15		187
Chemistry	T. I.				7							9				5		4	25
	B. E.																		
	H. Ec.	14	11	9		7	8	10	12	16	12	12	10			10	6		137
	Voc. Guid.																		
	Ag.	9	13	13	10	7	8	14	16	12	15	17	10	10	14	15	7	11	201
	D. E.					7													7
Totals		23	24	22	17	21	16	24	28	28	27	38	20	10	14	30	13	15	370
Biology Botany Zoology	T. I.					7										5	3		15
	B. E.																3		3
	H. Ec.			8		7	7	8	8	6	15	12	15	12	9	10	3		120
	Voc. Guid.																		
	Ag.	18	11	10	15	7	15	15	14	18	15	8	10	10	14	15	7	8	210
	D. E.					7													7
Totals		18	11	18	15	28	22	23	22	24	30	20	25	22	23	30	16	8	355

INSTITUTIONS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
History	T. I.														9	5	6	8	28
	B. E.	6										12					6		24
	H. Ec.	6		6									4	4	9		6		35
	Voc. Guid.																		
	Ag.	6		6			5			3		3	5	4	9		3	4	48
	D. E.	6										9							15
Totals		24		12			5			3		24	9	8	27	5	21	12	150
Poly. Sci.	T. I.											3					3		6
	B. E.	3										9					3		15
	H. Ec.	6											3	4	3		3		19
	Voc. Guid.																		
	An.	3		6						4		3	3	4	3	4	3		33
	D. E.	3																	3
Totals		15		6						4		15	6	8	6	4	12		76
Economics	T. I.					13						5					6	6	30
	B. E.	12				6	20				9	18							65
	H. Ec.	6	4	6		6	4	3	4	6		5	6	4	3	6	6		69
	Voc. Guid.																		
	Ag.	9	8	9	5	7	8	18	9	8	6	5	6	9	3	6	6	6	128
	D. E.	12				5						9							26
Totals		39	12	15	5	37	32	21	13	14	15	42	12	13	6	12	18	12	318
Sociology	T. I.					3										5	3	4	15
	B. E.	4					4								3		3		14
	H. Ec.	6		3		4			4	3				4	3	5	3		35
	Voc. Guid.																		
	Ag.	4		4		4				3		3			3		3		24
	D. E.	4														3			7
Totals		18		7		11	4		4	6		3		4	9	13	12	4	95

INSTITUTIONS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Math	T. I.											12			4	5	3	6	28
	B. E.	4			10	11	9				10	11					3		58
	H. Ec.		4			4	5	4	4			9		11	3		3		47
	Voc. Guid.																		
	Ag.	4	8	8	5	4	8	9	4	4		12	5	4	4		3	4	86
	D. E.	4			10							12				4			40
Totals		12	12	8	25	29	21	13	8	4	10	55	5	15	10	9	12	10	259
Statistics	T. I.																		
	B. E.	5			4									9		3			21
	H. Ec.																		
	Voc. Guid.																		
	Ag.	4		3			4	3											14
	D. E.	5			4														9
Totals		14		3	8		4	3						9		3			44
Physics	T. I.					7						18							25
	B. E.					7											3		10
	H. Ec.		4	4			6						5	5	3				27
	Voc. Guid.																		
	Ag.	4	5	3		7			6			10	5				4		44
	D. E.					7													7
Totals		4	9	7		28		6	6			28	10	5	3		7		106
Drawing	T. I.					4						6					3	6	19
	B. E.																		
	H. Ec.			3								3			3				9
Drafting	Voc. Guid.																		
	Ag.			2															2
	D. E.					7													7
Totals				5		11						9			3		3	6	37

APPENDIX B

COURSE SYLLABI TITLES REVIEWED

DURING THE STUDY

COURSE SYLLABI TITLES REVIEWED

DURING THE STUDY

Principles of Vocational Education
Methods of Teaching
Curriculum Development
Coordination Techniques
Philosophy of Vocational Education
Administration of Vocational Education
Education Evaluation
Organization of Content Materials
Conference Leading
Technical Education Programs
Educational Psychology
Principles of Secondary Education
Student Teaching
Educational Supervision
Introduction to Teaching
Introduction to Guidance
History of Education
Audio-Visual Techniques
Adult Education
Occupational Information
Activity Analysis
Introduction to Teaching Home Economics
Supervised Practice in Counseling
Appraising the Individual
Organization and Administration of Guidance
Personality and Mental Health
The Teaching of Industrial Arts
Individual Mental Testing
Wisconsin Plan for Vocational Education
Types of Tests and What They Measure
Counseling Procedures
Group Guidance Techniques
Tests and Measurements
Psychology of Learning
Research Methods in Education
Human Growth and Development
Improvement of Instruction in the Secondary School
Measurement Principles and Techniques
General Psychology
Reading in the Secondary School
Problems in Secondary Education for Vocational Education Teachers
Vocational Guidance for Vocational Teachers
Fundamentals of Job Analysis
Shop Organization and Management
Development of Instructional Materials
Education in Agricultural Occupations